Remarks

The Applicants confirm the earlier election of Group I, including Claim 1-3 and 6-8 for immediate prosecution. Claims 4, 5, 9 and 10 have been cancelled without prejudice and without disclaimer of the subject matter therein. The Applicants specifically reserve the right to file one or more divisional applications directed to that subject matter.

The Applicants note with appreciation the Examiner's helpful comments concerning the previously filed Information Disclosure Statement. The Applicants provide English translations of at least JP '162, '278 and '748 for the Examiner's convenience. A fresh Form PTO-1449 is also enclosed. Entry into the official file and consideration on the merits is respectfully requested.

The Applicants have amended Claims 1 and 6 so that they recite that the steel has a fatigue endurance after quenching of 450 MPa or more. Support may be found throughout the Applicants' specification such as in paragraph [0044] in the substitute specification. Entry into the official file is respectfully requested.

The Applicants have added new Claims 11-16. New Claim 11 is similar to Claim 1, prior to amendment. However, the ferrite grain diameter has been changed from 1.1 μm to less then 10 μm. This range is within the earlier range and is accordingly inherently supported. New Claims 12 and 13 are the same as Claims 2 and 3, respectively, except for their dependency on Claim 11 in the case of Claim 12 and on Claim 11 or 12 in the case of Claim 13.

New Claim 14 is similar to Claim 6, prior to amendment except that it also has a ferrite grain diameter of 1.1 μm to 10 μm. This change is similar to the change in range made to Claim 1.

Claims 15 and 16 are the same as Claims 7 and 8, respectively, except that Claim 15 depends on Claim 14 and Claim 16 depends on Claim 14 or 15. Entry into the official file and consideration on the merits is respectfully requested.

Claims 1-3 and 6-8 stand rejected under 35 USC §103 as being unpatentable over Yoshinaga. The Applicants note with appreciation the Examiner's helpful comments hypothetically applying Yoshinaga to those claims. The Applicants nonetheless respectfully submit that Yoshinaga does not apply to any of Claims 1-3 and 6-8. Reasons are set forth below.

The Applicants have discovered that a combination of several factors produces steels for structural parts that have excellent formability, fatigue endurance after quenching, low temperature toughness and resistance for hydrogen embrittlement. In other words, there is no one variable that

brings about this complicated result. Thus, the compositional elements are important factors. However, the manner in which the steel is manufactured also has an important bearing on the final characteristics of the steel. Thus, the combination of the compositional elements and the methodology result in this excellent steel. The Applicants have amended Claims 1 and 6 to better identify one of these advantages such as the fatigue endurance after quenching being 450 MPa or more. This advantageous feature is a result of that newly discovered combination of variables. The Applicants respectfully submit that Yoshinaga does not provide teachings that would or could lead one skilled in the art toward that result.

Moreover, the Applicants' new Claims 11-16, which specify that the ferrite grain diameter is 1.1 μm to 10 μm, is another feature which distinguishes over Yoshinaga. In that regard, the Applicants note the Examiner's helpful comments with respect to the ferrite grain sizes that are at least 10 μm to ensure good ductility. Those teachings may be found in col. 12 at lines 26-64 as noted in the rejection. Those teachings also make it very clear that that amount of the grain size should not be less than 10 μm. Yoshinaga specifically states that "it becomes difficult to secure good ductility when the ferrite grain size is less than 10 μm." This is a plain warning to those skilled in the art that the ferrite grain size should be at least 10 μm. On the other hand, Yoshinaga teaches that there is almost no grain size limit on the upside stating that there is, in fact, no "specific upper limit."

As a consequence, the Applicants respectfully submit that new Claims 11-16 are readily distinguished from Yoshinaga because the Applicants teach in one direction and Yoshinaga teaches in the other direction. This may be seen by reference to the tables in the Applicants' specification such as Table 4 wherein twenty-six steels are listed. In every instance, steels having a ferrite grain diameter more than 10 μm such as Steel E, Steel I, Steel X and Steel Z, have fatigue endurance of less than 450 MPa. Those numbers are 420, 365, 388 and 388, respectively, which correspond to ferrite grain diameters of 15.6, 13.4, 12.9 and 13.2.

Although it is possible that steels could have a ferrite grain diameter within the 1.1 μm to less than 10 μm range as set forth in Claims 11-16, in every instance, when the grain size is larger, the fatigue endurance is outside of the Applicants' range of 450 MPa as set forth in Claims 1-3 and 6-8.

Table 4 shows that the Applicants' particular combination of compositional elements and methodology for producing their steels results in steels having a ferrite grain diameter that is less than 10 μm, in many instances substantially below 10 μm. This is sharply different from the

teachings of Yoshinaga that specifically lead those skilled in the art to believe that any grain size less than 10 μm is a problem with respect to ductility. As a consequence, one skilled in the art would have no incentive to decrease the ferrite grain size based on the teachings of Yoshinaga. Inasmuch as the Applicants have demonstrated in their comparative examples that all steels having a ferrite grain size larger than 10 μm would have a lower fatigue resistance, the Applicants respectfully submit that it would be improper to take the position that the fatigue inherence recited in Claims 1-3 and 6-8 would be "inherent" in the Yoshinaga steels. As the rejection notes, the claimed characteristic must "necessarily" be present in Yoshinaga. The record does not indicate that this is the case. In fact, the Applicants' comparative examples which have ferrite grain sizes larger than 10 μm have fatigue endurances of much lower value than the Applicants' 450 MPa or more. The Applicants respectfully submit that this factual showing, as opposed to the speculation form Yoshinaga, renders the "inherency" position untenable.

Moreover, the Applicants note that there are any number of differences in the methodology employed by Yoshinaga versus the Applicants'. For example, Yoshinaga states that there is no specific cooling rate after hot rolling. This is contrasted to the Applicants' methodology which have specified ranges of cooling. Given such differences in manufacturing methodology between Yoshinaga and the Applicants, one skilled in the art would have a reasonable expectation that the physical characteristics of the Applicants' steels would likely be inherently different from those of Yoshinaga. It is not enough that any apparent overlap in compositional elements would cause their physical characteristics to "necessarily" be the same. Physical characteristics of steels are impacted not only by their compositional elements, but also the methods upon which they are made. In this case, there are differences in manufacturing methodology such as is demonstrated by the very different ferrite grain sizes. As a consequence, the Applicants respectfully submit that the record does not support an inherency assumption of the Applicants' claimed physical characteristics based on the teachings of Yoshinaga. Withdrawal of the rejection is respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,

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